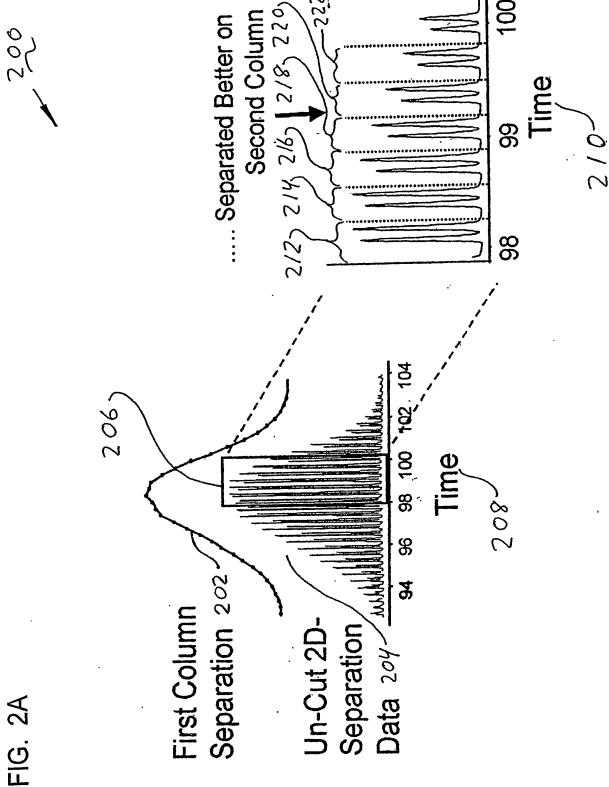
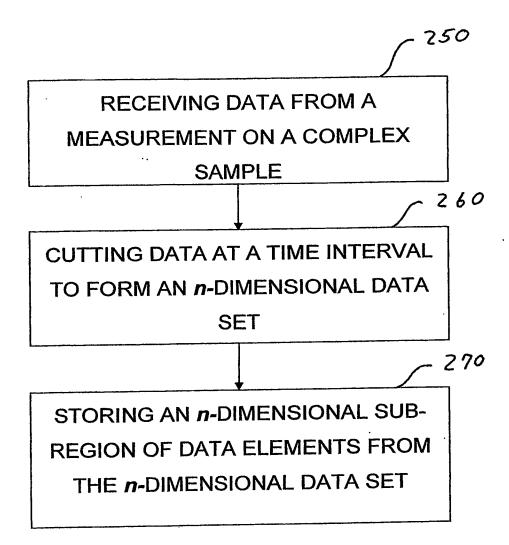
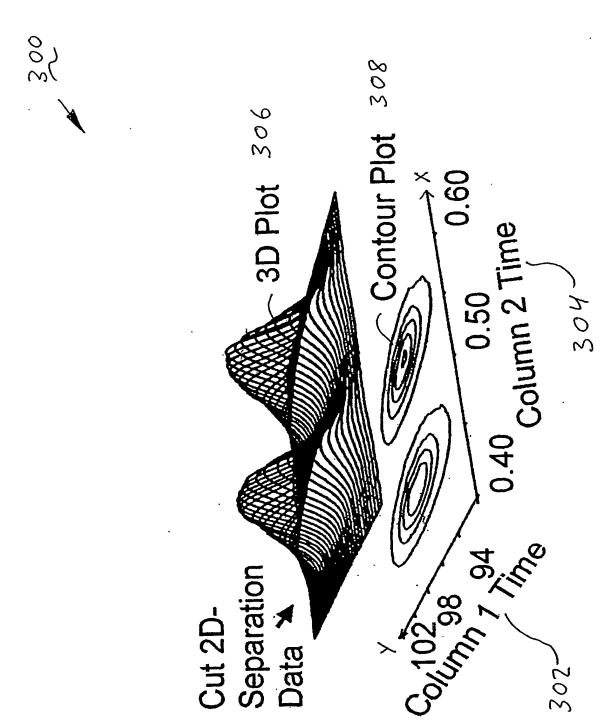
00 Detector Column 2 Secondary Injector Column 1 sample introduction Primary Injector 102-

FIG. 1

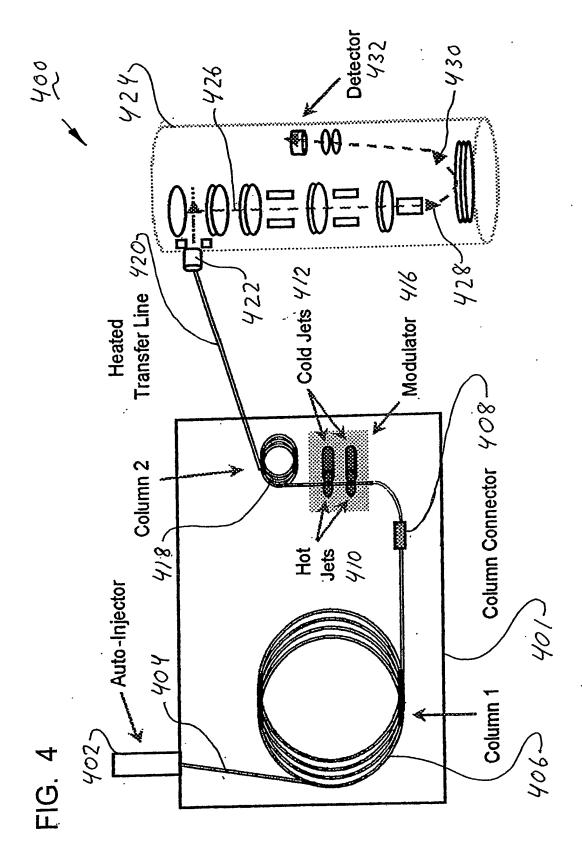


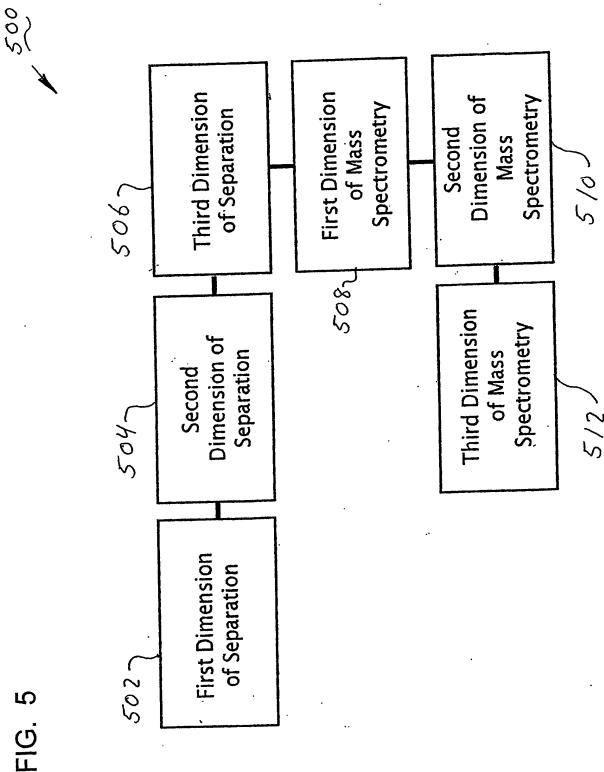
## FIGURE 2B





를 .





900
7

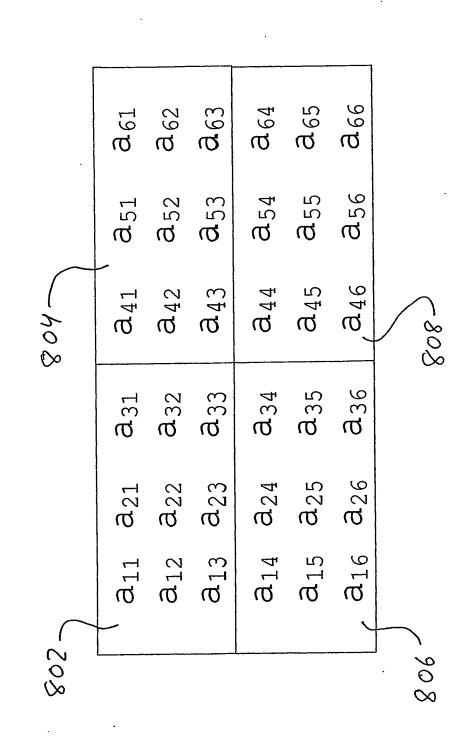
					(o)
<b>a</b> 61	<b>a</b> 62	<b>a</b>	g 64	d G	a66
<b>a</b> 51	<b>a</b> 52	<b>a</b> 53	<b>a</b> 54	<b>a</b> 55	<b>a</b> 56
A41	<b>a</b> 42	<b>a</b> 43	A44	<b>A</b> 45	a46
<b>a</b> 31	<b>a</b> 32	<b>a</b> 33	<b>a</b> 34	<b>a</b> 35	<b>a</b> 36
a <sub>21</sub>	<b>a</b> 22	<b>a</b> 23	<b>a</b> 24	<b>a</b> 25	<b>a</b> 26
a <sub>11</sub>	a <sub>12</sub>	$a_{13}$	a <sub>14</sub>	<b>a</b> 15	<b>a</b> 16
	a <sub>21</sub> a <sub>31</sub> a <sub>41</sub>	a <sub>21</sub> a <sub>31</sub> a <sub>41</sub> a <sub>51</sub> a <sub>22</sub> a <sub>32</sub> a <sub>42</sub> a <sub>52</sub>	a21 a31 a41 a51   a22 a32 a42 a52   a23 a33 a43 a53	a21a31a41a51a22a32a42a52a23a33a43a53a24a34a44a54	a21a31a41a51a22a32a42a52a23a33a43a53a24a34a44a54a25a35a45a55

FIG. 6

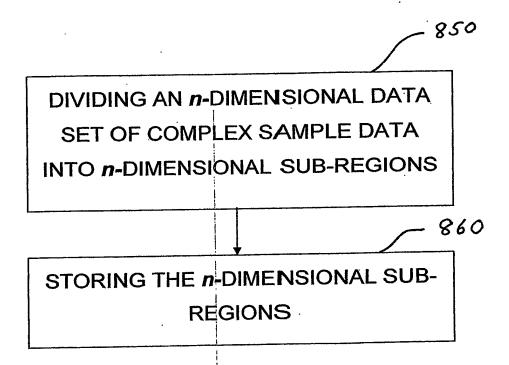
**a**65 **a**24 **a**32 55 ർ **a**22 **a**63 **A**45 **a**12 **a**53 **a**35 **a**61 **a**43 **a**25 99 ൻ **a**51 **a**56 **a**33 **a**15 **a**41 **a**23 **a**64 **a**46 **a**31 **a**36 **a**13 **a**54 **a**21 **a**62 **a**26 **a**44 **a**52  $a_{16}$ **a**34

=1G. 7

$\triangleleft$	
$\infty$	)
G.	)
II	•



## FIGURE 8B



-lG. 9

**a**33 **a**36 **a**63 99  $\varphi$ **a**23 **a**26 53 .56 ർ  $\alpha$ **a**13 **a**43 **a**16 д 4 **a**62 **a**35 **a**65 **a**32 **a**52 **a**25 **a**22 55  $\alpha$  $a_{12}$ **a**15 **a**42 45  $\boldsymbol{\omega}$ **a**34 **a**64 **a**61 **a**54 **a**21 **a**24  $a_{51}$ A44 a<sub>111</sub>  $a_{41}$ **a**14

FIG. 10 1000 1004 Brick data 1002 "Disk" 1006 1010 1008 brick buffers metadata "Main Memory" -1012 1014 صفير CPU-cached data from brick buffers and metadata

"CPU Cache"

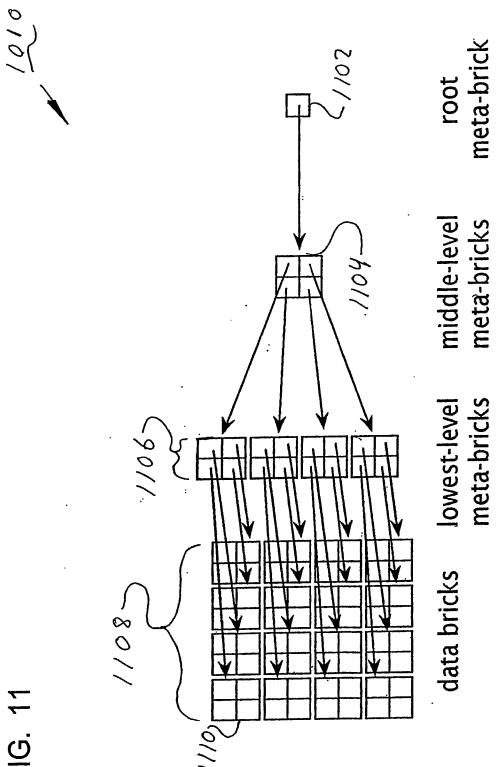


FIG. 12A

12027	<i>(</i>	204
(a, b, c)	Unused space (%)	]
(1,2,2048)	2.4	
(2,1,2048)	2.4	
(1,4,1024)	2.4	
(2,2,1024)	2.4	
(1,8,512)	2.4	1201
(2,4,512)	2.4	1206
(2,8,256) (1,256,16)	2.4	Y
(1,256,16)	2.4	
(2,128,16)	2.4	
(1,512,8)	2.4	
(2,256,8)	2.4	
(1,1024,4)	2.4	
(2,512,4)	2.4	
(2,1024,2)	2.4	
(1,16,256)	3.2192	Į
(2,16,128)	3.2192	
(1,128,32)	3.2192	
(2,64,32)	3.2192	
(1,32,128)	4.8576	
(1,64,64)	4.8576	ļ
(2,32,64)	4.8576	
(4,1,1024)	36.5333	
(4,2,512)	36.5333	
(8,1,512)	36.5333	
(4,4,256)	36.5333	
(8,2,256)	36.5333	
(4,8,128)	36.5333	
(8,4,128)	36.5333	1
(4,16,64)	37.6256	
(8,8,64)	36.5333	]

FIG. 12B

(a, b, c)	Unused space (%)
(4,32,32)	37.6256
(8,16,32)	35.4752
(4,64,16)	36.5333
(8,32,16)	36.5333
(4,128,8)	36.5333
(8,64,8)	36.5333
(4,256,4)	36.5333
(8,128,4)	36.5333
(4,512,2)	36.5333
(8,256,2)	36.5333
(4,1024,1)	36.5333
(8,512,1)	36.5333
(1,1,4096)	104.8
(1,2048,2)	104.8
(2,2048,1)	104.8
(16,1,256)	173.067
(16,2,128)	173.067
(16,4,64)	173.067
(16,8,32)	168.8
(16,16,16)	168.8
(16,32,8)	173.067
(16,64,4)	173.067
(16,128,2)	173.067
(16,256,1)	173.067
(1,4096,1)	309.6
(32,8,16)	433.333
(32,4,32)	437.6
(32,16,8)	437.6
(32,1,128)	446.133
(32,2,64)	446.133
(32,2,64).	446.133

FIG. 12C

r 1204

(a, b, c)	Unused space (%)
(32,32,4)	446.133
(32,64,2)	446.133
(32,128,1)	446.133
(64,4,16)	966.667
(64,8,8)	966.667
(64,2,32)	975.2
(64,16,4)	975.2
(64,1,64)	992.267
(64,32,2)	992.267
(64,64,1)	992.267
(128,2,16)	2033.33
(128,4,8)	2033.33
(128,8,4)	2033.33
(128,1,32)	2050.4
(128,16,2)	2050.4
(128,32,1)	2084.53
(256,1,16)	4166.67
(256,2,8)	4166.67
(256,4,4)	4166.67
(256,8,2)	4166.67
(256,16,1)	4200.8
(512,1,8)	8433.33
(512,2,4)	8433.33
(512,4,2)	8433.33
(512,8,1)	8433.33
(1024,1,4)	16966.7
(1024,2,2)	16966.7
(1024,4,1)	16966.7
(4096,1,1)	32375.3
(2048,1,2)	34033.3
(2048,2,1)	34033.3